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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,370	07/14/2004	Thierry Coleou	Cabinet -02	7593

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ADAMS AND REESE LLP
4400 ONE HOUSTON CENTER
1221 MCKINNEY
HOUSTON, TX 77010

EXAMINER

LE, TOAN M

ART UNIT	PAPER NUMBER
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2863

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/501,370	Applicant(s) COLEOU, THIERRY	
	Examiner Toan M. Le	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/22/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 7/14/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely, determining an estimate of the component that is common to the data series and deducing a resolution of these data series from the estimate as in claim 1, or comparing two series of seismic data for the same zone to grids of at least one common attribute obtained for two distinct values of at least one given parameter including filtering at least two series of seismic data representative of the same zone by determining an estimate of the component that is common to the data series and deducing a resolution of these data

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series from the estimate as in claims 5 and 7, or identifying a model of a component of three-dimensional variability of its variogram, subtracting the model from the experimental variogram, and solving the kriging equation corresponding to the different variograms in order to deduce an estimate of the corresponding variability component on the data series as in claim 6 would not appear to be sufficient to constitute a tangible result, since the outcome of the determining, comparing, determining, and deducing steps have not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Abstract

The abstract of the disclosure is objected to because line 2, “comprising” should read - including-.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by “Ordinary Cokriging Revisited”, Goovaerts (referred hereafter Goovaerts).

Referring to claim 1, Goovaerts discloses a method of filtering at least two series of seismic data representative of the same zone, the method being characterized by determining an

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estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate (pages 22-23, Simple Cokriging section; figure 2).

As to claim 2, Goovaerts discloses a method according to claim 1, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 23-25, Correlogram Notation section; pages 35-39, pages 35-39, Performance Comparison section).

Referring to claim 3, Goovaerts discloses a method according to claim 2, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (pages 23-25, Correlogram Notation section; page 25, ordinary Cokriging section).

As to claim 4, Goovaerts discloses a method according to claim 3, characterized by implementing kriging analysis to resolve said orthogonal residues (pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section).

Referring to claim 5, Goovaerts discloses a method of processing seismic data, comprising: comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained for two distinct values of at least one given parameter, said comparing including filtering at least two series of seismic data representative of the same zone by determining an estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate (pages 22-23, Simple Cokriging

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section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section; figure 2).

As to claim 6, Goovaerts discloses a method of filtering at least one series of seismic data representative of at least one zone, the method being characterized by identifying a model of a component of three-dimensional variability of its variogram, subtracting said model from the experimental variogram, and solving the kriging equation corresponding to the different variograms in order to deduce an estimate of the corresponding variability component on the data series (pages 21-22, Introduction section; pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section; pages 35-39, Performance Comparison section; figure 2).

Referring to claim 7, Goovaerts discloses a method of processing seismic data, comprising: comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained at two different instants, said comparing including filtering at least two series of seismic data representative of the same zone by determining an estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate (pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section; pages 35-39, Performance Comparison section; figure 2).

As to claim 8, Goovaerts discloses a method according to claim 1, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (pages 23-25, Correlogram Notation section; page 25, ordinary Cokriging section).

Referring to claim 9, Goovaerts discloses a method according to claim 8, characterized by implementing kriging analysis to resolve said orthogonal residues (pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section).

As to claim 10, Goovaerts discloses a method according to claim 5, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 23-25, Correlogram Notation section; pages 35-39, pages 35-39, Performance Comparison section).

Referring to claim 11, Goovaerts discloses a method according to claim 5, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (pages 23-25, Correlogram Notation section; page 25, ordinary Cokriging section).

As to claim 12, Goovaerts discloses a method according to claim 11, characterized by implementing kriging analysis to resolve said orthogonal residues (pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section).

Referring to claim 13, Goovaerts discloses a method according to claim 7, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 23-25, Correlogram Notation section; pages 35-39, pages 35-39, Performance Comparison section).

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As to claim 14, Goovaerts discloses a method according to claim 7, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (pages 23-25, Correlogram Notation section; page 25, ordinary Cokriging section).

Referring to claim 15, Goovaerts discloses a method according to claim 14, characterized by implementing kriging analysis to resolve said orthogonal residues (pages 22-23, Simple Cokriging section; pages 23-25, Correlogram Notation section; page 25, Ordinary Cokriging section).

Response to Arguments

Applicant's arguments filed 12/22/06 have been fully considered but they are not persuasive. Referring to claims 1-15, Applicant argues that "However, Goovaerts does not disclose determining an estimate of the component that is common to the data series. On the contrary, in Goovaerts, the estimate Z^*_{SCK} of equation (1) is an estimator of Z_1 and not an estimate of Z_1 and Z_2 ."

Answer: Goovaerts discloses "Let $\{z_1(u_{\alpha 1}), \alpha_1 = 1, \dots, n_1\}$ be the values of the primary attribute z_1 at n_1 location $u_{\alpha 1}$. To alleviate notation consider the situation where there is only one secondary attribute z_2 measured at, possibly different, location $u_{\alpha 2}$, $\{z_2(u_{\alpha 2}), \alpha_2 = 1, \dots, n_1\}$ Typically, only primary and secondary data closest to the location u being estimated are retained." (pages 22-23, Simple Cokriging section)

Besides, the equation 1 shows the estimator Z_{SCK} which is the component that is common to the data series z_1 and z_2 .

Conclusion

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

“Scale Matching with Factorial Kriging for Improved Porosity Estimation from Seismic Data”, Yao et al., Mathematical Geology, Vol. 31, No. 1, 1999, Pages 23-46

“Application of Seismic Attribute Filtering with Factorial Kriging to estimate Porous Volume: A Case Study on a Brazilian East Coast Offshore Turbidite Reservoir”, Mundim et al., SPE 69481, 2001

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

March 22, 2007



John Barlow
Supervisory Patent Examiner
Technology Center 2800